

Chronic Disease in Vermont: Breast Cancer Screening

Vermont's Ladies First Program¹ has been helping eligible Vermont women receive mammography screening for breast cancer since 1995 with the goal of removing income and insurance barriers to receiving mammograms in Vermont. Still, approximately 22 percent of Vermont women age 40 and over are not receiving mammograms at least every two years.²

Women enrolled in the Ladies First program cite many barriers to mammography screening: poor health status, anxiety/fear, lack of childcare/eldercare, lack of mobility, conflicts with work schedule, lack of primary health care provider, and concern about the cost of treatment, if needed.³ Vermont women outside the program might have additional barriers to mammography screening that we have yet to identify.

Geographical barriers to mammography have also been reported.⁴ Caledonia was the only Vermont county in which the percentage of women being screened for breast cancer was statistically significantly lower than the Healthy Vermonters 2010 goal for breast cancer screening (64% vs. goal of 70%).¹ Another measure of access to health care suggests more counties could be affected: nine of 14 Vermont counties are in limited or severe need of primary care physicians.⁵

Potential Barriers to Screening for Vermont Women

The Behavioral Risk Factor Surveillance System 1996 to 2000 data⁶ were used to characterize all Vermont women aged 40 and older who had not received a mammogram in the previous two years. Potential barriers to screening were broken down into those related to:

- **Economics:** Economic barriers included the variables for household income, education and lack of health insurance.
- **Screening behavior:** Other types of screening tests were compared with mammography screening to see if women who had one type of screening were more likely or less likely to undergo mammography. Screening behavior variables included not meeting recommended fecal occult blood test or sigmoidoscopy/colonoscopy screening for colon cancer, never having had a pap test for cervical cancer, blood pressure not checked within two years, and cholesterol not screened within five years.
- **Risk-taking behavior:** Risk-taking behavior was measured by the surrogates of seatbelt use and smoking status.
- **Mobility limitations:** Limits to mobility surrogates included the variables pre-school children in the home, older age,⁷ and general health status.⁸
- **Other chronic diseases:** Diabetes⁹, obesity, and measuring positive for "at risk for depression" were all considered as chronic diseases that might interfere with screening.

Having no health insurance outweighed both income and education as a predictor for Vermont women not receiving a mammogram in the previous two years. Other chronic disease screening behavior variables were strong predictors for mammography screening. The lack of colorectal cancer, blood pressure, cholesterol, and cervical cancer screening tests were all strong predictors for not receiving a mammogram in the previous two years. Smoking status and seatbelt use were not

good predictors for mammography use. Among mobility surrogates, having pre-school children in the home and age group (40-49, 50-64, 65+ years) were better predictors of mammography use than general health status.¹⁰ The chronic disease variables, diabetes, overweight/obesity and the "at risk" for depression screener, did not predict mammography use.

Table 1. Multivariate Odds Ratio for Women Age 40+ NOT Getting Mammograms, Vermont BRFSS 1996-2000

	Odds Ratio*	95% CI
Blood pressure check (w/in 2 years)		
YES	1.00	
NO	11.68	(5.16, 26.42)
Ever had a Pap test		
YES	1.00	
NO	4.00	(2.45, 6.53)
Had either colorectal cancer screening		
YES	1.00	
NO	3.16	(2.29, 4.36)
Cholesterol check (w/in 5 years)		
YES	1.00	
NO	2.89	(2.18, 3.84)
Has any type of health insurance		
YES	1.00	
NO	2.82	(1.83, 4.35)
Age groups:		
40-49	1.90	(1.41, 2.57)
50-64	1.00	
65+	1.87	(1.35, 2.60)

* Adjusted for all other variables in the model.

Best Predictors for Lack of Mammography Screening

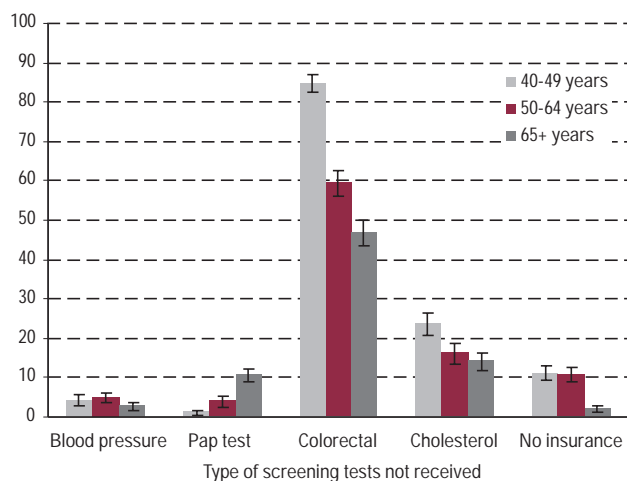
The variables in the final logistic regression model¹¹ are shown in Table 1. Blood pressure check within two years was associated with the largest odds ratio (OR), after adjusting for all of the other factors in the model. Vermont women age 40 and over who had not had their blood pressure checked within two years were almost 12 times as likely to have not received a mammogram as women who had their blood pressure checked within two years. Women who had never had a pap test, had neither type of colorectal cancer screening, nor cholesterol screening within five years were four times, over three times, and almost three times, respectively, less likely to have had mammograms than their counterparts in the same age groups who did receive these screening tests (see Table 1 for odds ratios). The lack of health insurance (OR=2.82) was a strong predictor for lack of mammograms despite the Ladies First program in Vermont. Vermont women in the youngest (OR=1.90) and oldest age groups (OR=1.87) were less likely to receive mammograms than the women in the 50 to 64 year old age group.

Prevalence of "Best Predictors" in Vermont Women

Figure 1 shows the prevalence of examined screening behaviors and health insurance status for Vermont women. Overall, fewer than 5 percent of women did not receive blood pres-

sure checks within two years. Women age 65+ had the highest percentage of missed cervical cancer screening (10.6 %) compared to women under age 65, of whom fewer than 4 percent had never had a pap test.¹² Colorectal screening was the screening missed by the largest percentage of women. The percentage of women who did not receive screening declined with increasing age, but more than half of women over age 50 did not receive this screening although it is recommended for people age 50 and older.¹³ Nearly one quarter of the youngest women (40-49 years) did not have cholesterol screening within five years compared to approximately 15 percent of women over 50. For women under age 65,¹⁴ approximately 10 percent had no health insurance compared to fewer than 2 percent of women over age 65, the majority of whom are eligible for Medicare.

Figure 1. Prevalence (Percent) of Characteristics Related to Not Getting Mammograms, Vermont BRFSS 1996-2000



The large odds ratio (OR=11.68) associated with blood pressure screening is likely to be a measure of risk associated with low access to health care, since more than 95 percent of Vermont women age 40 and older receive appropriate blood pressure screening. The strong relationship between lack of

mammography and lack of other screening suggests some barriers in common in addition to lack of health insurance.

References

¹Ladies First offers free mammograms and Pap tests for Vermont women ages 40 to 64 of limited income. The household income for two people can be up to \$29,850 a year. Services are also available to women of limited income over age 64 without Medicare Part B, and those age 18 and over who have breast symptoms or an abnormal Pap test. Call Kate at 1-800-508-2222 to find out more.

²Vermont Department of Health. Health Status Report. June 2002. Data source: VT BRFSS 1996-2000.

³ Ladies First Program, Vermont Department of Health.

⁴ Brustrom JE, Hunter DC. Going the distance: how far will women travel to undergo free mammography? *Mil Med* 2001 Apr;166(4):347-9.

⁵Vermont Department of Health. Health Status Report. June 2002, p.2. Limited or severe need corresponds to fewer than 79 primary care physicians per 100,000 population.

⁶ Behavioral Risk Factor Surveillance System is a telephone survey representing non-institutionalized adult Vermonters.

⁷Use of mammography services by women aged > or = 65 years enrolled in Medicare—United States, 1991-1993. *MMWR* 1995 Oct 20;44(41):777-81.

⁸ Burack RC et al. Health status and mammography use among older women. *J Gen Intern Med* 1998 Jun;13(6):366-72.

⁹ Beckman TJ, Cuddihy RM, Scheitel SM et al. Screening mammogram utilization in women with diabetes. *Diabetes Care* 2001 Dec;24(12):2049-53.

¹⁰At risk for depression: respondent reported feeling depressed for at least one full day during the preceding week AND feeling depressed for either a two-week period during the preceding year for “most of” the preceding year.

¹¹ Respondent reported “in general” health was excellent, very good, good, fair, poor.

¹² Generated with SUDAAN Release 7.5.4, Research Triangle Inst.

¹³ Statistically significant difference. 95% confidence intervals do not overlap.

¹⁴ Screening for colorectal cancer: recommendation and rationale. *Ann Intern Med* 2002 Jul 16;137(2):129-31.